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## ABSTRACT

As concern about the developmental progress of preschoolers has increased, the number of assessment instruments available has expanded. This paper reviews recent advances in early childhood assessment and evaluation, and describes several screening and assessment instruments. Varying information is presented for each test, but may include a description, its applications, available training materials, and information on reliability and validity. Screening tests include: (1) "Developmental Indicators for the Assessment of Learning-Revised"; (2) "Early Screening Profiles"; (3) "FirstSTEP: Screening Test for Evaluating Preschoolers"; and (4) "Kaufman Survey of Early Academic and Language Skills." Seven language tests are described, including: (1) "Oral and Written Language Scales"; and (2) "Test de Vocabulario en Imagenes Peabody" (Spanish version of "Peabody Picture Vocabulary Test"). Nine intellectual screening and assessment instruments are described, including: (1) "Kaufman Brief Intelligence Test"; (2) "Mullen Scales of Early Learning"; (3) "Infant-Toddler Developmental Assessment"; (4) "Bayley Scales of Infant Development"; (5) "Wechsler Preschool and Primary Scale of Intelligence-Revised"; and (6) "Kaufman Assessment Battery for Children." Also described is a parent instrument, "Child Development Inventory"; "System to Plan Early Childhood Services"; "Test of Variables of Attention"; and "Behavior Assessment System for Children." The descriptions note which tests have Spanish directions and which are especially appropriate for children with language delays, and briefly describes several resources available on early childhood assessment. (Contains 11 references.) (KDFB)

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## Abstract

Early childhood assessment and evaluation has become increasingly important over the last several years. This paper reviews recent advances, discusses several of the most well known assessment devices and provides information regarding their use, reliability and validity.

The field of early childhood is rapidly changing. More and more, educators, parents, and teachers are becoming increasingly concerned about the developmental progress of children and pre-schoolers. In the past, there were few instruments available for the evaluation of pre-school children. If there was real concern, a specialist was employed to use the Stanford Binet, or another intelligence test. Kindergarten teachers, in general, used their own basic common sense and experience, since they were unable to use I.Q. measures.

Recently, there has been a number of measures that have been constructed to help assess early childhood development. As more and more children enter pre-school and nursery schools, more and more people are endeavoring to assess the growth and maturation of children. This paper will review these recent advances in terms of intelligence, and developmental milestones in terms of language, motor skills and other domains. It will review recent advances in testing by professionals and para professionals. It is hoped that this paper will sensitize practitioners in this area to the vast array of instruments available to them for their specific use.

## Screening Tests

When one is faced with testing or assessing large groups of children, in a quick and efficient manner, there are few valid reliable instruments available. However, a recent revision of a test attempts to fill that void. The DIAL-R (Developmental Indicators for the Assessment of Learning-Revised) is a global screening instrument that is accurate and fairly easy to use. It assesses children from age two to five years eleven months, in approximately twenty to thirty minutes. Three areas are evaluated a) motor b) concepts and c) language. There is a total score and validity data includes predictive validity from a wide variety of studies. There is a training video which provides an overview of the testing process and shows item administration.

The authors of the DIAL-R (Mardell-Czudnowski & Goldenberg, 1990) indicate the following six basic applications of the DIAL-R :

- 1) the identification of children with potential developmental problems who are in need of further assesment or special education
- 2) the identification of potentially advanced children who are in need of further assessment or special education
- 3) the identification of children who may be "at risk" for environmental reasons and who would profit from programs designed to prevent school failure
- 4) a curriculum for identifying a child's strengths and weaknesses in order to plan instruction appropriate for individual needs
- 5) psychometric training, particularly in courses for undergraduate students or paraprofessionals

6) research on preschool and kindergarten children (p. 5)

The DIAL-R can help in screening programs for gifted children. Early precocious ability should be investigated and if possible nurtured. If there are apparent hearing problems, the child can be referred for evaluation.

There is a training program for the DIAL-R which includes a pre and post test and variations on "how to" handle a large group of children at one time.

Early Screening Profiles is another screening instrument that can be administered by paraprofessionals and which also meets U.S. federal guidelines and mandates. There are two levels to this instrument which may provide differential amounts of information needed. Three main profiles are available : Cognitive/Language Profile; Motor Profile and Self-Help/Social Profile and four "survey areas" are also available : Articulation Survey, Home Survey, Health History Survey, and Behavior Survey. Administration time is about 15 to 40 minutes and this can be administered by paraprofessionals. This test is for children ages 2 to 6 years, eleven months.

Within the Cognitive Language Profile are four subtests- verbal concepts, visual discrimination, logical relations and basic school skills.

FirstSTEP : Screening Test for Evaluating Preschoolers was developed by Lucy Miller (1993) is a individually administered screening test that can be given in about 15 minutes. The age range of this screening device is 2.9 to 6.2 years. It is hand scorable and the reports classify children as "Within Acceptable Limits"; Caution (mild to moderate developmental delays) or At Risk (for developmental delays). Two video tapes are available for training. One demonstrates the administration and scoring of the FirstSTEP and a second contains a administration of an entire FirstSTEP to two children- one with a developmental delay and another with out any delay.

For slightly older children, the K-SEALS (Kaufman Survey of Early Academic and Language Skills) is an instrument that is easy to administer and assesses language skills (expressive and receptive), pre-academic skills (for ages 5-0 to 6-11) and articulation. This test is for children 3-0 to 6-11 and takes about 15-25 minutes to administer. This test is ideal for preschools, kindergartens, elementary schools, speech and language clinics, medical agencies and head start facilities. It is in an easel format, and scoring is direct and simple and the protocol facilitates standard score comparisons. The K-Seals is published by American Guidance Service and the manual (Kaufman and Kaufman, 1993) contains validity and reliability information and standardization data.

In some instances, some agencies may need to rely on the parents to provide information about their child. The Child Development Inventory (CDI) is a 320 item questionnaire that evaluates the development, behavior and symptoms of young children. This can be given to students from 15 months to 6 years in approximately 30 to 40 minutes. This inventory identifies the child's strengths and any areas of possible developmental delay. Parents are asked to provide information in a Yes-No format.

This inventory assesses the following domains : social, self-help, gross motor, fine motor, expressive language, language comprehension, letters, numbers, and general development. This inventory is of particular importance since the passage of Public Law 99-457 which recognizes the importance of involving parents in planning and assessment. Ireton (1992) indicates that "the format may be inappropriate for parents of some racial and cultural groups and for parents with less than a high school education. The validity of the CDI results depends on the parents ability to read and understand the Inventory instructions and items." (p.5) Thus, for those working with functionally or marginally illiterate individuals, caution must be taken. It may be that a paraprofessional could be used to administer the test verbally to those lacking reading skills and abilities.

There is a system to allow professionals to plan for early childhood services. SPECS (System to Plan Early

Childhood Services) is for ages two to six and tries to link four major assessment/intervention objectives: Screening, Team Assessment, Program Planning and Child Progress or Program Evaluation. This system attempts to assist in the decision making process about early childhood educational services. This helps to assess the needs of at risk children, and those with disabilities and tries to determine the services they need and evaluate their progress. SPECS is published by American Guidance Service and serves as an ideal mechanism for program planning for early childhood services.

The Oral and Written Language Scales (OWLS) is a test which is comprised of two main subtest, Listening Comprehension and Oral Expression. This test can be administered to children at age 3 as a quick measure of receptive and expressive language. The scales were normed on a nationwide standardization sample of 1,795 children and young adults. There is computerized software to assist in the scoring. This test is administered in an easel format the manual (Carrow-Woolfolk, 1995) contains information regarding validity, reliability and discusses the test's use with speech impaired, language delayed, language impaired, mentally handicapped, hearing impaired and the learning disabled.

The Listening Comprehension Scale (LCS) contains 3 examples and 11 items. In this test, a verbal stimulus is presented to the examinee verbally. The subject responds by indicating verbally or by pointing the number of one of four pictures.

The Oral Expression Scale (OES) consists of 2 examples and 96 items. The child is shown a picture while the examiner reads a verbal stimulus. The subject responds verbally by either responding to a question or by finishing a sentence or indicating one or more sentences.

There is a Written Expression Scale which "is an assessment of written language of individuals aged 5 through 21 years. This scale is designed to measure the following writing skills : the ability to use conventions (servicable handwriting, spelling, punctuation, etc) the ability to use syntactical forms (modifiers, phrases, various sentence structures, etc.), and the ability to communicate meaningfully (appropriate content, coherence, organization, etc.)" (Carrow-Woolfolk, 1995 p.2).

In the past, it has been quite difficult to assess Spanish speaking students in a valid reliable fashion. The TVIP (Test de Vocabulario en Imagenes Peabody) is a measure of Spanish vocabulary which is based on the Peabody Picture Vocabulary Test. This test can be administered to students age 2.3 to 18 and takes only about 10-15 minutes to administer. This test can be used for evaluating the language development of Spanish speaking preschool children

or for screening purposes. It may also be used to determine the most effective language of instruction for bilingual children and students. The Kaufman Assessment Battery for Children, a processing test to be covered in the next section is a valid reliable test which can also be administered to Hispanic children and which contains norms for Black children.

In terms of intellectual screening, the K-BIT (Kaufman Brief Intelligence Test) (Kaufman and Kaufman, 1990) can be given to students from ages 4-90 in about 15 to 30 minutes and which measures verbal knowledge of words and their meanings, and which measures the ability to complete analogies and solve new problems.

The Mullen Scales of Early Learning is an instrument that covers birth to 68 months. This test assesses language, motor, and perceptual abilities in 15-35 minutes. The examiner can receive standard scores, percentile ranks, age equivalents, and an "Early Learning Composite". However, this test requires that the examiner have completed graduate level training or have experience in clinical infant assessment. The Mullen should be seen as a viable alternative to the Leiter (with extremely outdated anachronistic norms) or the McCarthy. The Mullen Scales of Early Learning is published by American Guidance Service and also has computer scoring which features developmental

learning activities.

The Infant-Toddler Developmental Assessment (IDA) (Provence, Erikson, Vater, Palmeri, 1995) is an instrument that attempts to identify infants and very young children, ages birth to three years of age who might be developmentally at risk. This assessment may be used to develop an initial Individualized Family Service Plan (IFSP).

The IDA is an attempt to provide a very comprehensive family oriented approach to developmental assessment while employing a transdisciplinary team approach.

The test is organized in six phases : 1) Referral & Pre interview Data Gathering 2) The Initial Parent Interview 3) Health Review 4) Developmental Observation and Assessment 5) Integration and Synthesis and 6) Share Findings, Completion and Report. A study guide is included to help professionals master the basics and the specific details of the six phases.

Eight developmental domains are assessed : 1) Gross Motor, 2) Fine Motor 3) Relationship to Inanimate Objects (Cognitive), Language/Communication, Self-Help, Relationship to Persons, Emotions and Feelings States (affects) and Coping.

Reliability coefficients for the Provence domain scores are very high ranging from .90 to .96 for ages 12 to 18 months and .78 to .96 for ages 19-36 months. Data on inter-rater reliability range from .91 to .95 for seven of the

eight domains and .81 for the last domain.

One tangential area of assessment that bears mentioning is the area of attention deficit disorder. It has been difficult in the past to objectively assess "hyperactivity" using traditional means. However, a recent advance is the T.O.V.A. : Test of Variables of Attention. This computer scored test can be given to children ages 4 and older to assess inattention, impulsivity, and variability. This test can be used to measure attention in neurological injuries and other disorders and can be used as part of a multidisciplinary assessment of children, adolescents and even adults who could possibly have an attentional problem or deficit. It can also be used in conjunction with medication to ascertain the effectiveness of medication over time.

A second area is the realm of auditory discrimination. The Goldman-Fristoe-Woodcock Test of Auditory Discrimination is appropriate for children ages 3 and older and takes about 20-30 minutes to administer. This test is one of the few that is specifically constructed to evaluate the auditory discrimination skills of young children. A test tape is provided to enhance standardization of administration.

The test attempts to assess the child's ability to discriminate various speech sounds against two different backgrounds- quiet and noise. Standard scores and percentile ranks are provided.

A follow up assessment is the Goldman Fristoe Test of Articulation which has three subtests. The first subtest takes approximately 15 minutes for the Sounds in Words subtest which employs 35 pictures to procure articulation of the major speech sounds in the initial, medial and final positions. The Sounds in Sentences Subtest and Stimulability subtest time varies for various children.

In the domain of receptive-expressive language the REEL-2 (Receptive-Expressive Emergent Language Test (Bzoch, League, 1991) assesses children from birth to age three. The results are provided in terms of an Expressive Language Age, a Receptive Language Age, and a Combined Language Age.

Weatherby and Prizant (1993) have developed a Communication and Symbolic Behavior Scales (CSBS) instrument to measure communication during normal adult-child interactions and utilizing data from multiple sources, directly samples a child's communication skills in both structured and unstructured situations.

#### Other Areas of Concern

In addition to global screening, some have advocated the evaluation of specific domains in early childhood, particularly those with special needs (McLean, Bailey and Wolery (1996). In their text, there are several chapters on highly specific assessment issues written by experts in the field. O'Donnell (1996) discusses the neurobehavioral assessment of the newborn infant, Langley (1996) reviews the

screening and assessment of sensory functions and Harris and McEwen (1996) write cogently regarding the formal and informal assessment of motor skills. Crais and Roberts (1996) review the assessment of communication skills and Odom and Munson (1996) review the assessment of social performance. Horn and Children (1996) provide a rationale for the assessment of adaptive behavior. Lastly, Lifteer discusses assessing play skills. Certainly this text is written for those whose daily work is in the field of assessment, but it provides a major crucial source of information for those involved in the evaluation and assessment of preschoolers with special needs. The second edition of this book is probably the most comprehensive text available. Graves, Gargiulo and Sluder (1996) have an excellent chapter in their book, but approach the assessment issue from a different perspective. They focus on more informal procedures such as systematic observations, anecdotal records, work samples, developmental scales, checklists, rating scales and interviews.

In the field of behavioral assessment, the BASC (Behavior Assessment System for Children) is a tool for describing the emotions and behaviors of children and adolescent. It is used for children ages 4-18 and includes teacher rating scales, parent rating scales and self-report of personality. This test is particularly helpful in the diagnosis of conduct disorder, major depression and attention deficit Hyperactivity Disorder. There are two

computerized formats available for scoring.

### Early Assessment of Intelligence

In the past, psychologists had to rely on the Stanford Binet or the Bayley Scales of Infant Development for testing young children. These tests were often long, difficult to administer and tedious for both the examiner and the subject. I.Q. tests with younger children have been seen to be notoriously unreliable.

The Bayley Scales of Infant Development have recently been revised. The second edition is an attempt to identify children who have a cognitive or motor delay.

The Mental Scale evaluates a number of different abilities. These are : a) Sensory/perceptual acuities, discriminations and response b) acquisition of object constancy c) memory, learning and problem solving d) vocalization, beginning of verbal communication e) the basis of abstract thinking f) habituation g) mental mapping h) complex language and i) mathematical concept formation

The Motor Scale evaluates : a) degree of body control b) large muscle coordination c) finer manipulatory skills of the hands and fingers d) dynamic movement e) dynamic praxis f) postural imitation g) stereognosis

The Behavior Rating Scale provides additional information that should be viewed as supplementary. The 30 item scale assess the child's relevant test taking behaviors

and measures the following domains : a) attention/arousal b) organization/Engagement c) Emotional Regulation d) Motor Quality.

WPPSI-R Wechsler PreSchool and Primary Scale of Intelligence

The Wechsler Preschool and Primary Scale of Intelligence- Revised (WPPSI-R) was developed to assess the intelligence of children from ages two years eleven months to seven years, three months. Although the administration time can be rather lengthy, ( over one hour ) examiners may simply accomodate young children by giving the test in more than one sitting.

The WPPSI-R is divided into two areas, performance tests and verbal tests. A performance I.Q. (PIQ) is derived from the performance scaled score, and a verbal I.Q.(VIQ) is derived from the verbal scaled score. A full scale I.Q. is also derived from these scores.

The performance tests consists of six subtests. These are : a) Object Assembly b) Geometric Design c) Block Design d) Mazes e) Picture Completion and f) Animal Pegs ( which is an optional test).

The verbal tests also consist of six subtests. These are: a) Information b) Comprehension c) Arithmetic d) Vocabulary e) Similarities and f) Sentences ( which is an optional test).

The WPPSI-R is a comprehensive instrument for the qualified examiner who has the time and wishes to conduct a thorough assessment of children's intelligence. Examiners who have additional training in child development may glean additional information regarding the child's language, visual motor, and memory development. The WPPSI-R profile on the front of the record form provides an easy-to-read graph of strengths and weaknesses. The manual (Wechsler, 1989) provides information as to standardization, reliability, validity and related information. For an in-depth review of the use of this test with preschool children, see Gyurke (1991).

The Kaufman Assessment Battery for Children (K-ABC) (Kaufman, & Kaufman, 1983). The K-ABC is published by American Guidance Service and has long been regarded as one of the most "culture fair", or "culture free tests".

The K-ABC is based on a sequential/simultaneous model of processing. The K-ABC was developed to assess intelligence and achievement of children from ages two years six months to twelve years six months. In addition to the sequential, simultaneous, mental processing composite and achievement scales, a nonverbal scale may be utilized for the assessment of hearing impaired, communication disordered, and non-English speaking children.

Although the K-ABC consists of sixteen subtests, fourteen of them include the assessment of younger children. They are : a) Magic Window (starting at age 2-6) b) Face Recognition (starting at age 2-6) c) Hand Movements (starting at age 2-6) d) Gestalt Closure (starting at age 2-6) e) Number Recall (starting at age 2-6). Others include Triangles (starting at age 4-0) Word Order (starting at age 4-0) Matrix Analogies (starting at age 5-0) Spatial Memory (starting at age 5-0)

In the achievement realm, there is Expressive Vocabulary (starting at age 2-6), Faces and Places (starting at age 2-6), Arithmetic (starting at age 3-0) Riddles (starting at age 3-0) and Reading/Decoding (starting at age 5-0).

For those desiring more in depth information Kamphaus and Kaufman (1991) have discussed the use of the K-ABC in the assessment of preschool children.

The latest edition of the Stanford Binet, Fourth Edition is an instrument utilized for the measurement of cognitive abilities and development in individuals from ages two through adult. The latest version provides four distinct, separate I.Q. scores : Verbal, Abstract/Visual, Quantitative, and Short Term Memory .

Again, because of the extensive nature of the Stanford-Binet and the possibility of a lengthy test session it is important that the examiner be aware of younger children's tendency to fatigue. It may be important, for instance, to be sure that the child has had his/her daily nap or that efforts be made to establish rapport with the child prior to testing. It may also be important that the child have had a well balanced breakfast or lunch before beginning testing.

Although the Stanford-Binet consists of fifteen subtests, in most cases only eight of them will be used for the assessment of younger children. These are : a) Vocabulary ( which is a routing test ) b) Comprehension c) Absurdities d) Quantitative e) Pattern Analysis f) Copying g) Bead Memory and h) Memory for Sentences.

The Stanford Binet is a powerful assessment instrument for the cognitive abilities of young children and only qualified, certified licensed professionals should be administering, interpreting, and scoring this test.

There are, however, some weaknesses to the test. These include the lengthy administration time and the provision of

only estimated standard age scores for younger children in the number series, matrices, memory for digits, and memory for objects subtests. On the positive side, the recent revision has focused on the use of attractive colorful material that holds the child's interest and attention. The McCarthy Scales of Children's Abilities (McCarthy, 1972) is a somewhat dated instrument that has five scales : a) Verbal b) Perceptual-Performance c) Quantitative d) Memory and e) Motor. Three of these five scales ( Verbal, Perceptual/Performance and Quantitative ) are combined to yield a composite score ( termed a general cognitive index) with a mean of 100 and standard deviation of 16. Bracken (1991) discusses the use of the test with preschool children. He indicates a limited floor for young or developmentally delayed children for some of the subtests. The test does provide an opportunity for the qualified astute examiner to note developmental problems, motoric concerns and handedness and laterality. The test, should however, be renormed in the near future.

For children with language delays or deficits, the Columbia Mental Maturity Scale ( Burgemeister, Blum & Lorge, 1972) is a test which requires only a pointing response and can be employed with a yes/no question and answer format. The test requires children to make visual-peceptual discriminations. There are ninety two cards arranged in 8 levels for the assessment of chilren from ages 3 years, six months to 9 years 11 months. The child is simply asked to

indicate or select a drawing that is different from the others. Spanish directions are available with this test, so it is useful with Spanish speaking children referred for evaluation.

#### Summary and Conclusions

For many reasons, the screening and evaluation of younger preschool children has become increasingly important and professionals in the field need to know about the wide variety of instruments that are available for gross screening and for in depth assessment of certain areas. It is hoped that this article sensitizes the reader to at least some of the age appropriate tests which may be used for evaluative as well as research purposes. As we approach the year 2000, the early identification of both strengths and weaknesses as well as needs will become increasingly important.

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